

WHAT IS CLAIMED IS:

1. A pump for generating a pumping action based on reciprocal movements of an air cylinder portion to thereby suck and discharge a fluid via valves,

wherein pump components including a fitted assembly formed by fitting a plurality of members with each other form a structure unit which is constrained on the opposite ends thereof for come-off prevention as tightly inserted in an external cover.

2. The pump according to Claim 1, comprising:

a pump body including an in-flow passage and an out-flow passage for the fluid;

a pump cylinder formed on one end of said pump body;

a bellows formed from a resin and capable of being extended or contracted in said pump cylinder and along a center axis;

an air cylinder portion for extending or contracting said bellows; and

check valves disposed within the pump body facing a pumping chamber defined by said pump body, pump cylinder and bellows and alternately operative to open and close in conjunction with the extension and contraction of said bellows to thereby alternately suck and discharge the fluid,

wherein the fitted assembly formed by at least

partially fitting said pump cylinder, bellows and air cylinder portion with each other is tightly inserted in said external cover and constrained on the opposite ends thereof for come-off prevention.

3. The pump according to Claim 1 or 2, wherein said external cover comprises a cylindrical body, one end of which is formed with a thread on an inside thereof for threadedly engaging a thread formed on an outside of said pump body, and the other end of which is formed with a stopper portion.

4. The pump according to Claim 1 or 2, wherein said external cover and all the other pump components are formed from resin materials.

5. The pump according to Claim 1, comprising:

a pump body including an in-flow passage and an out-flow passage for the fluid;

a pump cylinder provided at one end of said pump body;

a bellows capable of being extended or contracted in said pump cylinder and along a center axis and cooperating with said pump body and pump cylinder to form a pumping chamber;

an air cylinder portion for extending or contracting said bellows; and

an external cover enclosing therein said pump

cylinder, bellows and air cylinder portion and threadedly engaging said pump body for fastening with each other along said center axis while cooperating with the pump body to clamp these members therebetween with respect to said center axis,

wherein sealing portions in opposed relation are provided in correspondence to a connection area between at least one of said pump body and bellows and said pump cylinder and are wedged in each other according to the fastening by said external cover and pump body to thereby form a seal.

6. The pump according to Claim 5, wherein one of said sealing portions has a ring-like projection portion whereas the other sealing portion has a recess portion allowing the projection portion to be press-fitted therein.

7. The pump according to Claim 6, wherein said portions are formed from a resin and a ring-like minor projection having a height smaller than said projection portion is formed on only one of said sealing portions.

8. The pump according to Claim 1, comprising:

a pump body including an in-flow passage and an out-flow passage for the fluid;

a pump cylinder provided at one end of said pump body;

a bellows capable of being extended or contracted in said pump cylinder and along a center axis and cooperating with said pump body and pump cylinder to form a pumping chamber;

an air cylinder portion for extending or contracting said bellows;

an external cover enclosing therein said pump cylinder, bellows and air cylinder portion and threadedly engaging said pump body for fastening with each other along said center axis while cooperating with the pump body to clamp these members therebetween with respect to said center axis, and

a plurality of check valves juxtaposed on the in-flow passage of said pump body.

9. The pump according to Claim 8, further comprising a plurality of check valves juxtaposed on the out-flow passage of said pump body.

10. The pump according to Claim 9, installed in a manner that said center axis extends horizontally and that the check valves for discharge are disposed at an upper place whereas the check valves for suction are disposed at a lower place.